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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Yoshihide ITEYA

Serial No.: 09/785,026

Filed: February 15, 2001

For: **BICYCLE CONTROL DEVICE**

Art Unit: 3682

Examiner: Julie K. Smith

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
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Marta Hodur

**SECOND SUPPLEMENTAL APPEAL BRIEF**

In response to the Office Action, dated May 27, 2005, Applicant submits this Second Supplemental Appeal Brief and requests reinstatement of its previously filed appeal. It is believed that no fee is due for filing this brief. However, if a fee is due, authorization is hereby given to charge any fee (or credit any balance) to the undersigned deposit account 10-0440.

This is an appeal from the decision dated May 27, 2005, rejecting claims 1 and 3-27 as unpatentable under 35 U.S.C. § 112, ¶ 1; rejecting claims 1 and 3-27 as indefinite under 35 U.S.C. § 112, ¶ 2; rejecting claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27 as being anticipated under 35 U.S.C. § 102(b) by Abe, U.S. Patent No. 6,073,730 ("Abe"); rejecting claims 7 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of Seimitsu, Japanese Patent Application JP 20026893 ("Seimitsu"); rejecting claims 8 and 22 under 35 U.S.C. § 103(a) as

Second Supplemental Appeal Brief

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Customer No. 24574

being unpatentable over Abe in view of Miyoshi et al., Japanese Patent Application JP 04048521 ("Miyoshi"); rejecting claims 12 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of Hill et al., U.S. Patent No. 5,745,438 ("Hill"); and rejecting claims 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of Chou, U.S. Patent No. 5,370,412 ("Chou").

#### REAL PARTY IN INTEREST

The real party in interest is Shimano Inc., the assignee of the subject application.

#### RELATED APPEALS AND INTERFERENCES

None.

#### STATUS OF CLAIMS

Claim 2 has been canceled. Claims 1 and 3-27 remain pending and are the subject of this appeal.

#### STATUS OF AMENDMENTS

No claim amendments were submitted or entered following the final rejection, dated May 27, 2005.

#### SUMMARY OF THE INVENTION

Modern bicycles frequently include a number of control devices that enable a rider to optimize his or her ride. Typical control devices include brake control devices, shift control devices, and combinations of the two. In addition, modern bicycles frequently include cycle computers that provide riders with information about their ride on computer screens. It is desirable to locate such computer screens directly in front of the rider, but locate the control device away from the computer, near the bicycle's handle grips. This minimizes the need for the rider to move his or her hands between the control device and the control switch, which can impair the ability to steer and control the bicycle. In addition to the foregoing, it is desirable to provide a control switch assembly having a structure and configuration that allow for relatively

simple and inexpensive installation. Thus, a need has arisen for a bicycle control switch which addresses these concerns (page 1, line 16-page 2, line 18 and page 6, lines 1-8).

The present invention fulfills these needs. Without limiting the scope of the present invention in anyway, the independent claims on appeal are summarized as follows: Claim 1 is directed to a bicycle switch mounting assembly comprising a bicycle control device having a top surface that defines a recess in the device. The recess has a bottom wall and a side wall connected to the bottom wall. The claimed mounting assembly further comprises an operation control button with an outer periphery having a shape. The operation control button is movable within the recess, and the recess has a shape which conforms to the shape of the outer periphery of the operation control button.

Independent claims 3 and 4 are directed to a bicycle switch mounting assembly for holding a computer control switch. Claim 3 recites a bicycle shift control device, and claim 4 recites a bicycle brake control device. The respective control devices comprise a top surface defining a recess that is dimensioned to receive an operation control button. The recess also has a shape conforming to the outer periphery of the operation control button, and the control button is movable within the recess.

Independent claim 5 is directed to a control device for holding a computer switch. The control device comprises an integrated brake and shift control device and an operation control button. A casing having a recess encompasses the brake and shift control devices. The recess is dimensioned to receive the computer control switch and has a shape conforming to the shape of the outer periphery of the operation control button. The operation control button is movable within the recess.

Independent claim 6 is directed to a bicycle switch assembly. The assembly comprises a bicycle control device having a casing that defines a switch mounting recess. A control switch comprising an operation control button is mounted in the switch mounting recess,

and the recess has a shape conforming to the shape of the outer periphery of the operation control button. The operation control button is movable within the recess.

Similarly, independent claim 13 is directed to a bicycle control assembly for holding a control switch for a computer. The control switch has an operation control button. The assembly comprises a control device having a casing that defines a switch mounting recess. The recess is dimensioned to receive the control switch and has a shape conforming to the shape of the outer periphery of the control button. The operation control button is movable within the recess.

Claim 18 is directed to a handlebar assembly controllable by the hand of a bicycle rider. The assembly comprises a handlebar having an end to which a hand grip is attached. A control device is attached to the handlebar proximal the hand grip such that the rider's hand can reach the device while remaining on the hand grip. The control device defines a switch mounting recess in which a control switch is mounted. A cycle computer is attached to the handlebar separately from the control device and is electrically connected to the control switch. The control switch comprises an operation control button, and the recess has a shape conforming to the outer periphery of the control button. The operation control button is movable within the recess.

Claim 20 is directed to a method of installing a control switch having an operation control button with an outer periphery having a shape. The method comprises providing a control switch and a bicycle device having a top surface. The top surface defines a switch mounting recess that comprises a bottom wall connected to a side wall. The switch mounting recess is dimensioned to receive the control switch and has a shape conforming to the outer periphery of the operation control button. The operation control button is movable within the switch mounting recess.

A preferred embodiment of a control device as described by the above claims is shown in Figures 1a, 1b and 2 of the present application. According to the embodiment, a combined bicycle brake and shifting control device 20 is provided which contains a switch

mounting recess 42 defined in a surface of the control device 20. See page 4, line 26 to page 5, line 2; page 6, line 22 to page 7, line 4. The recess 42 is dimensioned to receive a control switch 40 which is mounted in the recess 42. See Figures 3-7.

### ISSUES

1. Is the subject matter of claims 1 and 3-27 unpatentable for failure to comply with the written description requirement of 35 U.S.C. § 112, ¶ 1?
2. Is the subject matter of claim 1 and 3-27 unpatentable for indefiniteness under 35 U.S.C. § 112, ¶ 2.
3. Is the subject matter of claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27 anticipated under 35 U.S.C. § 102(b) by Abe?
4. Is the subject matter of claims 7 and 21 obvious under 35 U.S.C. § 103(a) over Abe in view of Seimitsu?
3. Is the subject matter of claims 8 and 22 obvious under 35 U.S.C. § 103(a) over Abe in view of Miyoshi?
4. Is the subject matter of claims 12 and 26 obvious under 35 U.S.C. § 103(a) over Abe in view of Hill?
5. Is the subject matter of claims 18 and 19 obvious under 35 U.S.C. § 103(a) over Abe in view of Chou?

### GROUPING OF THE CLAIMS

The grouping of the claims is as follows:

Claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27 (bicycle control device having a recess dimensioned to receive a control switch mounted in the recess);

Claims 7, 21 (control switch attached in recess by an adhesive);

Claims 8, 22 (control button with elastic attachment arm press-fitted into hole in recess);

Claims 12, 26 (retention ring threadingly engaged with recess);

Claims 18 and 19 (bicycle control device attached to handlebar proximate handgrip and having recess defined therein, wherein a control switch is mounted in the recess);  
and

The claims do not stand or fall together. Each of the foregoing groupings will be argued separately below. Nevertheless, Applicant is not conceding that the features of the dependent claims are necessary to support patentability. Instead, the claim groupings are being separately argued in order to show that the claims include several features that alone or in combination distinguish the present invention from the prior art.

### ARGUMENT

After receiving Applicant's Supplemental Appeal Brief, the Examiner re-opened prosecution of this application a second time. However, she has again rejected all of the pending claims based on the same references which were previously asserted. No new references have been cited. In addition, for the first time during the four-year pendency of this application, the Examiner now asserts that Applicant's claims are indefinite and fail to comply with the Patent Statute's written description requirement. As set forth below, however, Applicant's original specification clearly supports the pending claims and conveys to one of ordinary skill in the art that Applicant was in possession of the presently claimed invention at the time the application was filed. Further, the pending claims delineate the metes and bounds of the invention with sufficient clarity, and therefore, are definite.

As also explained below, each of the Examiner's prior art rejections relies on the Abe reference. However, Abe does not disclose the subject matter of Applicant's claims and cannot be combined with the other asserted references to obtain the claimed invention. As a result, the Examiner's rejections are improper and should be withdrawn.

I. The Subject Matter of Claims 1 and 3-27 Satisfies the Written Description Requirement of 35 U.S.C. § 112, ¶ 1

The Examiner asserts that the pending claims do not satisfy 35 U.S.C. § 112, ¶ 1. The May 27, 2005 Office Action does not expressly indicate whether the rejection is based on the enablement or written description requirements of 35 U.S.C. § 112. However, based on the Examiner's January 13, 2005 Office Action, Applicant understands that it is based on the written description requirement, *not* the enablement requirement.<sup>1</sup>

As indicated in the attached Claim Appendix, each of the pending claims recites an operation control button that is connected to a control device. The top surface of the control device or its casing has a recess defined in it wherein the button is movable within the recess. According to the Examiner, the claims do not satisfy the written description requirement because "the specification does not provide support for *how* the button is movable within the recess and it appears from the drawings that the button is only movable within the recess for assembly/disassembly." May 27, 2005 Office Action at 2.

First, it should be noted that the claim limitation at issue was added to Applicant's claims in January 2003. At no time prior to the January 13, 2005 Office Action did the Examiner assert that Applicant's claims were unsupported by the original application.

Second, the Examiner's rejection is inconsistent with the pending claims. The pending claims do not recite how the switch is movable within the recess. They merely recite

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<sup>1</sup> In the Examiner's January 13, 2005 Office Action, she asserted that "Claims 1 and 3-27 [stand] rejected . . . as failing to comply with the written description requirement." January 13, 2005 Office Action at 2. One of the bases of this rejection was mooted by claim amendments submitted in response to the Office Action. However, the other asserted basis is the same one articulated in the pending May 27, 2005 Office Action, i.e., the alleged lack of support for a button that is movable within a control device recess. *Id.* at 2. Furthermore, the Examiner has made no attempt to show that the claimed invention could not be obtained without undue experimentation and has not provided any analysis of the factors set forth by the Federal Circuit or the Manual of Patent Examining Procedure for evaluating undue experimentation. See *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988); Manual of Patent Examining Procedure (8<sup>th</sup> ed., Rev. 2, 2004), § 2164.01(a). For this reason as well, it is evident that the Examiner's rejection is based on the written description requirement.

that the switch *is* movable within the recess. The test for sufficiency of support in an original application is "whether the disclosure of the application relied upon reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." See Wang Laboratories, Inc. v. Toshiba Corp., 993 F.2d 858, 865 (Fed. Cir. 1993)(citations omitted)(emphasis added). The Examiner's rejection goes to unclaimed subject matter. As mentioned above, the Examiner's rejection is based on the written description requirement--not the enablement requirement--of 35 U.S.C. § 112, ¶ 1. Because the claims do not recite how the button is movable within the recess, whether the originally-filed application describes how the button is movable is irrelevant for purposes of compliance with the written description requirement.

Third, it is undisputed that Applicant's original application describes a button that is movable within a control device recess. The Examiner apparently contends that Applicant must *expressly* discuss a movable button in its specification to comply with the written description requirement. However, that is not the law. As the Federal Circuit has held:

In order to determine whether a prior application meets the "written description" requirement with respect to later filed claims, the prior application need not describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons skilled in the art that as of the earlier date the applicant had invented what is now claimed.

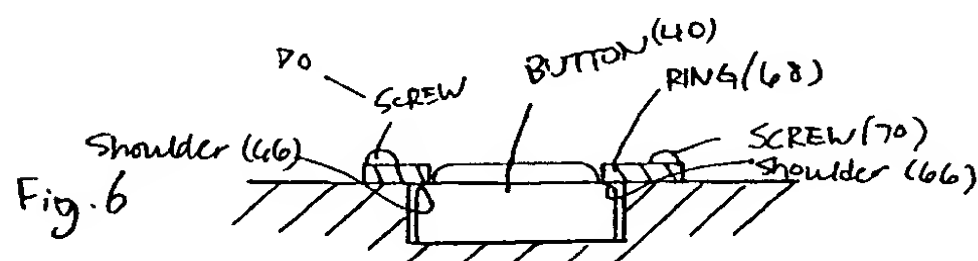
Eiselstein, v. Frank, 52 F.3d 1035, 1038 (Fed. Cir. 1995).

A copy of Applicant's originally-filed application is attached as Exhibit A hereto. The specification describes "a control switch 40," which in the preferred embodiment of Figures 3-7 comprises an operation control button. Exh. A at 5:25-28. One of ordinary skill in the art would readily recognize that the button has to move within the recess in order to function as a switch. Moreover, the originally-filed application describes embodiments that require the use of a "thumb to operate . . . control switch 40" as well as embodiments in which "the control switch 40 is located on the control device 20 at a location that is conveniently accessible by the rider's



index finger." Exh. A at 6:1-5. Again, one of ordinary skill in the art would readily recognize that in order for the rider to actuate the switch with a thumb or index finger, the switch has to be movable in the recess.

Further, the embodiments of FIGS. 6 and 7 include retention rings that are expressly described as *restricting the movement* of their respective buttons, providing further support for a movable control button. For example, FIG. 6 is described as follows<sup>2</sup>:



"In the embodiment shown in Figure 6, the outer casing 48 of the control switch 40 includes a shoulder 66." Exh. A at 8:6-7.

"The retention ring 68 is dimensioned to *restrict the movement* of the shoulder 66 such that the shoulder 66 is *not able to move outside* of the switch mounting recess 42." Exh. A at 8:10-13 (emphasis added).

"If . . . the specification contains a description of the claimed invention, albeit not in *ipsis verbis* (in the identical words), then the Examiner or the Board, in order to meet the burden of proof, must provide reasons why one of ordinary skill in the art would not consider the description sufficient." In re Alton, 76 F.3d 1168, 1175 (Fed. Cir. 1996). Notwithstanding the foregoing specification excerpts, the Examiner has not articulated any reason why one of ordinary skill in the art would not understand that Applicant's original application described a control button that is movable in a control switch recess. Thus, the rejection is improper and should be withdrawn.

<sup>2</sup> The version of FIG. 6 shown here is the originally-filed version. It was subsequently replaced when Applicant submitted formal drawings on February 19, 2002.

II. The Subject Matter of Claims 1 and 3-27 is Definite Under 35 U.S.C. § 112, ¶ 2

The Examiner next contends that Claims 1 and 3-27 are indefinite under 35 U.S.C. § 112, ¶ 2. According to the Examiner, Applicant's recitation of a control button movable within a recess "is unclear, as the movement of the button within the recess is not clearly defined." May 27, 2005 Office Action at 2. More specifically, the Examiner states that "the button could be moveable only during assembly/disassembly or during operation of the button to perform a function." *Id.* at 2. Again, this limitation has been included in the pending claims for two years. Yet despite having issued three substantive Office Actions and two Advisory Actions since then, the alleged "indefiniteness" was not raised until the Examiner's January 13, 2005 Office Action.

"If one skilled in the art would understand the bounds of the claim when read in light of the specification, then the claim satisfies section 112 paragraph 2." Exxon Research and Engineering Co., v. U.S., 265 F.3d 1371, 1375 (Fed. Cir. 2001). The pending claims recite a control button that is *connected to* a control device and *movable* within a recess defined in the device. There is no ambiguity as to whether the button is only moveable during assembly and disassembly. The claims clearly state that the button is movable when it is connected to the control device. The claims are not limited by assembly or disassembly terms. Thus, "the claims at issue are sufficiently precise to permit a potential competitor to determine whether or not he is infringing." *Id.* (citations omitted). Therefore, they meet the definiteness requirement of 35 U.S.C. § 112.

III. The Subject Matter of Claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27 Is Not Anticipated by Abe Under 35 U.S.C. § 102(a)

The Examiner asserts that claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27<sup>3</sup> are

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<sup>3</sup> Applicant has grouped Claim 1 with the other claims that were rejected solely based on Abe. In view of 37 C.F.R. 1.192(7), Applicant is presenting its arguments for this group based on the language of Claim 1. However, the claims in this group are not all identically worded. Thus, in framing its

anticipated by Abe under 35 U.S.C. § 102(b). At the outset, Abe does not qualify as prior art under Section 102(b). Abe issued on June 13, 2001. As indicated by the attached filing receipt (Exh. B), the present application was filed on February 15, 2001, less than one year after Abe was issued. Accordingly, Abe's device was not "patented or described in a printed publication . . . more than one year prior to the date of the application for patent in the United States" by Applicant. 35 U.S.C. § 102(b). Thus, Abe is not prior art under Section 102(b).

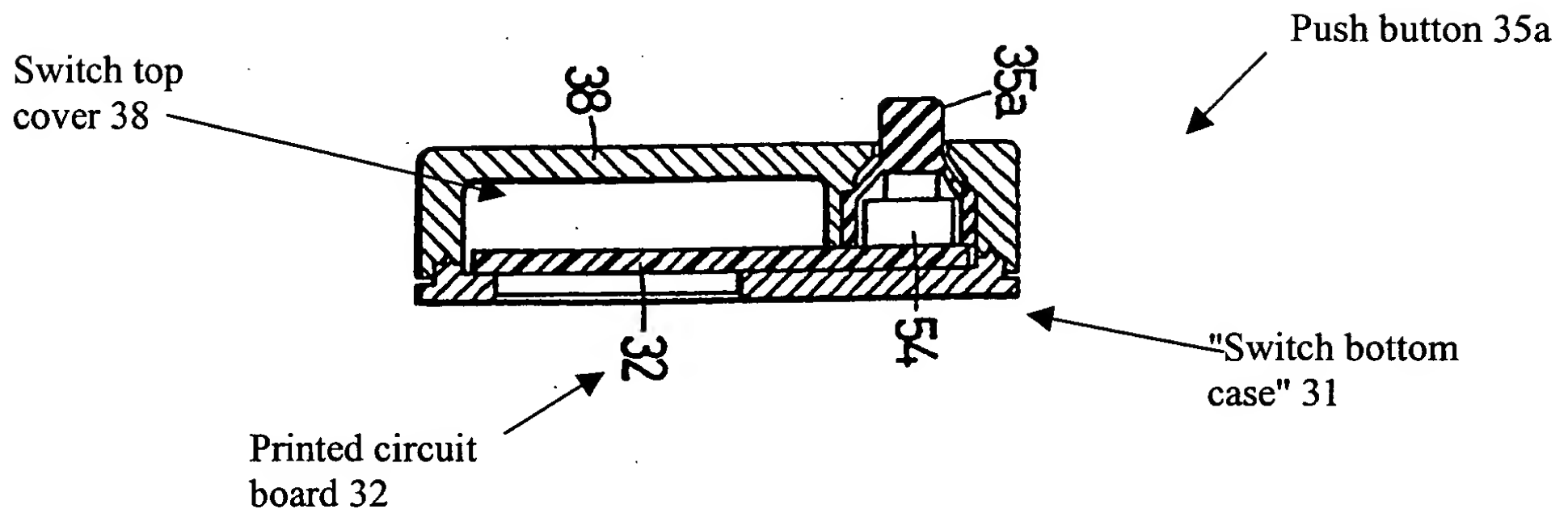
Moreover, Abe does not disclose or suggest each of the limitations of the rejected claims, and therefore, cannot anticipate them. Claim 1 is directed to a bicycle switch mounting assembly for holding a computer control switch. It recites a bicycle control device having a top surface that defines a recess in the device. It further recites an operation control button that is movable within the recess. The recess has a shape that conforms to the outer periphery of the operation control button. The side wall is connected to the bottom wall. The rejected claims in this group recite a structural relationship between a bicycle control device and a control button or switch which is neither suggested nor disclosed by Abe. Thus, it cannot anticipate them. See Seachange International, Inc. v. C-Cor, Inc., 413 F.3d 1361, 1379 (Fed. Cir. 2005) ("A claim is anticipated if *each and every* limitation is found either expressly or inherently in a single prior art reference") (emphasis added) (citations omitted).

Abe's device does not include a top surface that defines a recess having a connected bottom and sidewall. At most, the "top surface" or casing of Abe's device defines a bottomless hole.

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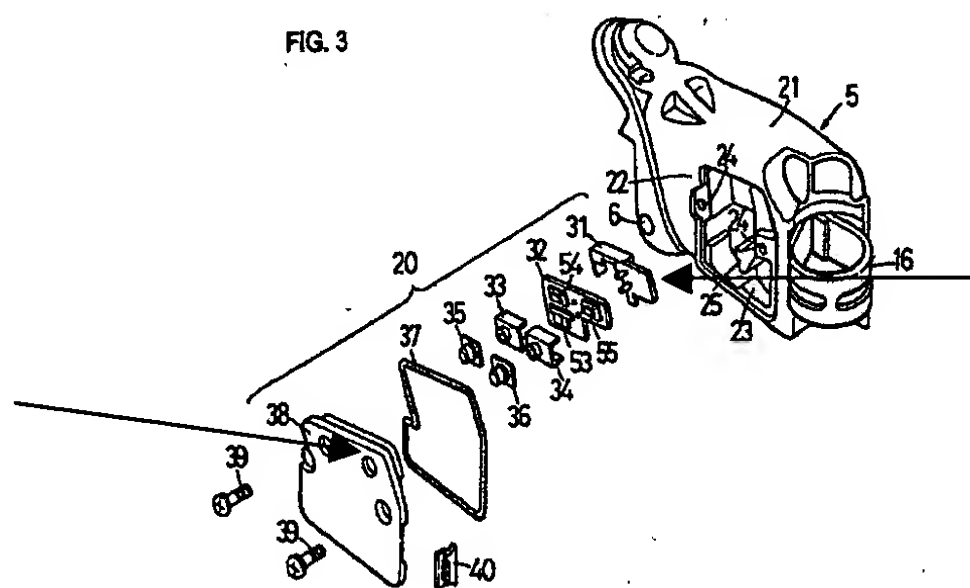
arguments to comply with Rule 192, Applicant does not concede that each claim in this group should be construed identically with one another or that any of the claims in other designated groups should be construed identically with one another.

In support of her rejection, the Examiner relies on Abe's FIG. 11:



The Examiner contends that Abe's switch top cover 38 comprises "a casing (38) encompassing the brake/shift control device wherein the casing defines a recess therein, the recess having a bottom wall (31) and sidewall (38)." May 27, 2005 Office Action at 3. However Claim 1 recites "a bicycle control device having a top surface, the top surface defining a recess therein, the recess having a bottom wall and a side wall connected to the bottom wall." As shown in FIG. 3 of Abe, the "switch top cover 38" does not have a top surface that *defines* a recess having a bottom wall and a connected sidewall. At most, its top surface defines a *hole* with no bottom wall:

Abe's "switch top casing" 38 has several *through-holes*. However, its top surface does not define a recess having a bottom wall *connected* to side walls.



The Examiner contends that "switch bottom case" 31 is a "bottom wall" of Abe's "recess."

The top surface or casing 38 does not *define* a recess that has a bottom wall. Instead, the "bottom wall" identified by the Examiner is a separate component—switch bottom case 31. Thus, Abe does not disclose the features of Claim 1 and cannot anticipate it or the remaining claims grouped with it.

IV. The Subject Matter of Claims 7 and 21 Is Not Obvious Under 35 U.S.C. § 103(a) Over Abe In View of Seimitsu

The Examiner has rejected claims 7 and 21 as obvious over Abe in view of Seimitsu. Claims 7 and 21 depend from claims 6 and 20, respectively, and they further recite the attachment of the claimed switch in the switch mounting recess by an adhesive. The Examiner has applied Abe in the same manner described above for claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27. As such, claims 7 and 21 are allowable for the same reasons that claims 6 and 20 are allowable over the prior art of record.

The rejection is further improper because Seimitsu is non-analogous art, and its combination with Abe is not motivated or suggested by the prior art. Seimitsu is a Japanese Patent Application for which the Examiner has supplied an English-language abstract. According to the Examiner, Seimitsu "teaches using an adhesive to attach a portable clock to a fixed base." May 27, 2005 Office Action at 4. She further asserts that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to attach the control switch to the switch mounting recess using an adhesive so as to provide a secure connection between the switch and recess." Id.

First, Seimitsu is non-analogous art. "In order to rely on a reference as a basis for rejection of the applicant's invention, the reference must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In Re Oetiker, 977 F.2d 1443, 1447 (Fed. Cir. 1992). Seimitsu concerns the use of an adhesive to fix a vibration damper to a transparent base used in the liquid

crystal panel of electronic devices such as a clock and telephone. It does not address control switches or techniques for mounting or attaching them. Thus, combining Seimitsu with Abe is improper.

The Examiner contends that Seimitsu "was concerned with the attachment of an electronic device to a base," and therefore, that it is analogous. May 27, 2005 Office Action at 7. However, this broad characterization of Seimitsu's disclosure does not indicate that it is "reasonably pertinent to the *particular* problem" with which the present application is concerned. See In Re Oetiker, 977 F.2d at 1447 (emphasis added). Indeed, the Oetiker court rejected an examiner's contention that garment fasteners were reasonably pertinent to the applicant's problem of fastening hose clamps, *Id.* at 1447, even though one could broadly characterize each of them as related to connecting discrete articles. Here too, the problem of attaching vibration dampers to phones or clocks bears too little relation to the problem of attaching switches to bicycle control devices to be "reasonably pertinent."

Second, Abe's disclosure belies the Examiner's obviousness contention. The Examiner contends that "using an adhesive to attach one member to another is old and well known in the art . . . ." May 27, 2005 Office Action at 4 (emphasis added). However, Abe does not suggest the desirability of using an adhesive to attach its switches to a switch mounting recess. If the prior art had in fact disclosed the desirability of using an adhesive to attach a control switch in a switch mounting recess, Abe should have made use of the technique as well. However, it does not. Instead, the Examiner has selectively extracted individual elements of the claimed invention from the prior art, without any basis in the prior art for doing so. See In Re Laskowski, 871 F.2d 115, 117 (Fed. Cir. 1989).

V. The Subject Matter of Claims 8 and 22 Is Not Obvious Under 35 U.S.C. § 103(a) Over Abe In View of Miyoshi

The Examiner has rejected claims 8 and 22 as obvious based on the combination

of Abe and Miyoshi and has again indicated that Abe is applied in the same manner as for Claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27. The rejection is improper because the combined references do not teach all of the claim limitations and because there is no motivation or suggestion in the prior art for combining them.

A. Abe and Miyoshi Do Not Teach or Suggest the Claimed Invention

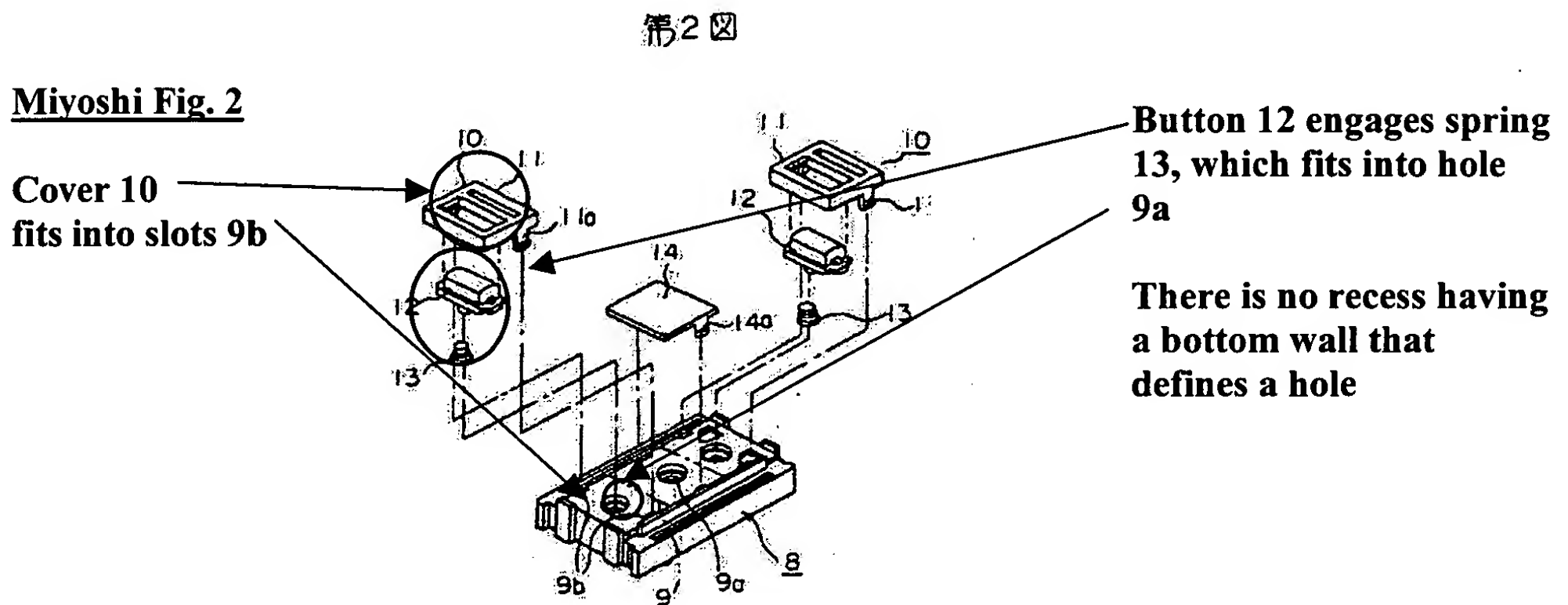
Claims 8 and 22 depend from Claims 6 and 20, respectively, and further recite a hole in the bottom surface of the switch mounting recess and an elastic attachment arm on the operation control button, wherein the attachment arm is press fitted into the hole. Thus, claims 8 and 22 are allowable for the same reasons that claims 6 and 20 are allowable over the prior art.

In addition, Miyoshi cannot be combined with Abe to obtain the elastic attachment arm feature recited in claims 8 and 22. Miyoshi is a Japanese Patent Application for which the Examiner has provided an English-language abstract. According to the Examiner, Miyoshi discloses a "switch mounting recess defining a hole (9a, b) therein, the control switch 12 having an attachment arm 13 made of an elastic material, wherein the attachment arm is press-fitted into the hole of the switch mounting recess." May 27, 2005 Office Action at 5. Contrary to the Examiner's assertion, Miyoshi discloses a button 12 that engages a spring 13. The spring 13 is not an "attachment arm" of the button 12, as the Examiner contends. Spring 13 appears to extend into hole 9a. However, the abstract does not describe the arrangement. Moreover, nothing in the reference indicates that spring 13 is elastic, and claims 8 and 22 recite an elastic attachment arm.

The Examiner contends that Miyoshi's spring is "inherently elastic" and that it is "used to attach the button (12) to a base." May 27, 2005 Office Action at 8. However, nothing in the translated abstract or the figures indicates that the spring "attaches" button 12 to the base. Instead, it merely appears that it biases button 12 away from case 6. The abstract states that

cover 11 is attached by "fitting a projection 11a of the top cover 11 to a fitting hole 9b."

However, the spring is not described as performing any attachment function and cannot fairly be characterized as an "attachment arm." Moreover, nothing in the reference indicates that attachment is an inherent feature of the spring.



The Examiner's strategy of using hindsight to selectively pick claim elements from the prior art is clearly revealed by the assertion of Miyoshi. The Examiner indicates that holes 9a and 9b are a "switch mounting recess defining a hole." However, claims 8 and 22 require a switch mounting recess that defines a bottom wall and which comprises a bottom surface defining a hole therein. At most, Miyoshi shows a hole. It does not, however, show the claimed structure of a recess having a bottom surface defining a hole. Moreover, Miyoshi does not disclose a recess that conforms to the shape of the outer periphery of a control button, as required by the rejected claims.



B. The Examiner Has Failed to Provide a Motivation Or Suggestion In the Prior Art For Combining Abe and Miyoshi

As with the above-described rejections, the Examiner has again failed to demonstrate that the *prior art* suggested the combination of Miyoshi with Abe to obtain the claimed invention. "When an obviousness determination is based on multiple prior art references, there must be a showing of some teaching, suggestion, or reason to combine the references." Winner International Royalty Corp. v. Wang, 202 F.3d 1340, 1348 (Fed. Cir. 2000) (citations omitted). See also In re Stencel, 828 F.2d 751, 755 (Fed. Cir. 1987)("Nor is obviousness established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion that the combination be made").

The Examiner contends that "it would have been obvious . . . so as to provide a more secure and stable form of attachment for the control device switch." May 27, 2005 Office Action at 5. However, that assertion is completely unsupported. "The factual inquiry whether to combine references . . . must be based on objective evidence of record." In re Sang-Su Lee, 277 F.3d 1338, 1343 (Fed. Cir. 2002). In Sang-Su Lee the Federal Circuit reversed a Board of Patent Appeals and Interferences finding of obviousness, holding that "[t]his factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority." Id. at 1343-1344. Thus, the rejection is improper on this basis as well. See also, Application of Rice, 481 F.2d 1316, 1318 (C.C.P.A. 1973).

The Examiner defends the assertion of Miyoshi on the grounds that "reconstruction is proper" if it "takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made." However, she does not identify the alleged source of that knowledge or how it justifies the reconstruction of the references that would be necessary to obtain the claimed invention. See In Re Laskowski, 871 F.2d 115, 117 (Fed. Cir. 1989).

VI. The Subject Matter of Claims 12 and 26 Is Not Obvious Under 35 U.S.C. § 103(a) Over Abe In View of Hill

The Examiner has rejected claims 12 and 26 as obvious based on the combination of Abe and Hill has again indicated that Abe is applied in the same manner as for Claims 1, 3-6, 9-11, 13-17, 20, 23-25 and 27. The rejection is improper because the references require modifications that are not motivated or suggested by the prior art in order to obtain the claimed invention. Moreover, Hill is non-analogous prior art, and its combination with Abe and Miike is not motivated or suggested by the prior art.

Claims 12 and 26 depend from claims 11 and 24, and are allowable for the same reasons that claims 11 and 24 are allowable over the prior art. In addition, claims 12 and 26 further recite the threaded engagement of a retention ring in the switch mounting recess. According to the Examiner, Hill "teaches a threaded retention ring used to secure a member (17) within a recess (32)." May 27, 2005 Office Action at 5. In support of her rejection, the Examiner asserts that the combination of Hill with Abe and Miike "would have been obvious . . . so as to provide a secure method of retaining the control switch within the recess that could withstand the rough conditions to which a bicycle might be exposed." *Id.* at 6.

First, the assertion of Hill is improper because it is non-analogous prior art. Hill does not involve control switches, or structures for retaining them within recesses. Instead, it is directed to an electrostatic transducer. The portion of Hill relied upon by the Examiner concerns the threaded engagement of an O-ring retainer 16 in a transducer housing 11 to secure a sleeve 17. Thus, Hill it is non-analogous art, and its assertion against the present application is improper. See In Re Oetiker, 977 F.2d 1443, 1447 (Fed. Cir. 1992).

The Examiner has broadly characterized Hill's disclosure as related to the problem of "securing a device within a housing," and on that basis, contends that it is analogous. However, she has not demonstrated that the reference is "reasonably pertinent" to the particular

problem of attaching a movable switch to a bicycle control device or within a control device switch recess, as required by the standard set forth in Oetiker.

Third, the Examiner has again failed to show a motivation or suggestion in the prior art for combining Hill with Abe. Although the Examiner identifies a benefit of threaded retention ring engagement--i.e., providing a secure method of retaining the control switch within the recess--she has not shown that this was an acknowledged goal in the prior art. She has merely provided her own unsupported contention that such was the case. See In re Sang-Su Lee, 277 F.3d 1338, 1343 (Fed. Cir. 2002).

VII. The Subject Matter of Claims 18 and 19 is Not Obvious Under 35 U.S.C. § 103(a)  
Over Abe in View of Chou

Claims 18 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Abe in view of Chou, U.S. Patent No. 5,370,412 ("Chou"). Claim 18 recites a handlebar assembly comprising a bicycle control device that has a top surface defining a switch mounting recess therein, the switch mounting recess having a bottom wall and a sidewall connected to the bottom wall. As explained above, Abe does not disclose this limitation. Nor does Chou. The Examiner contends that Chou discloses a cycle computer attached to a handlebar, separate from a control device. However, Chou does not disclose the claimed relationship between an operation control button and a switch mounting recess formed in a bicycle control device's top surface. Thus, the claimed references--even if combined (which would be improper)--do not disclose all of the limitations of Claim 18 and cannot render it obvious. Claim 19 depends from Claim 18, and therefore, is allowable over the combination of Abe and Chou as well.

**CONCLUSION**

In view of the foregoing, it is respectfully requested that the rejection of claims 1 and 3-27 be withdrawn and that the claims be allowed.

Respectfully submitted,

JEFFER, MANGELS, BUTLER & MARMARO LLP

Dated: September 22, 2004

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## APPENDIX

1. (Previously Presented) A bicycle switch mounting assembly for holding a computer switch, comprising:

a bicycle control device having a top surface, the top surface defining a recess therein, the recess having a bottom wall and a side wall connected to the bottom wall;

an operation control button with an outer periphery having a shape, wherein the operation control button is connected to the bicycle control device and movable within the recess, and wherein the recess has a shape which conforms to the shape of the outer periphery of the operation control button.

2. Cancelled

3. (Previously Presented) A bicycle switch mounting assembly for holding a computer control switch comprising:

a bicycle shift control device having a top surface, the top surface defining a recess therein, the recess having a bottom wall and a side wall connected to the bottom wall;

an operation control button with an outer periphery having a shape, wherein the operation control button is connected to the bicycle shift control device and movable within the recess, and wherein the recess is dimensioned to receive the computer control switch and has a shape conforming to the shape of the outer periphery of the operation control button.

4. (Previously Presented) A bicycle switch mounting assembly for holding a computer control switch comprising:

a bicycle brake control device having a top surface, the top surface defining a recess therein, the recess having a bottom wall and a side wall connected to the bottom wall;

an operation control button with an outer periphery having a shape, wherein the operation control button is connected to the bicycle brake control device and movable within the recess, and wherein the recess is dimensioned to receive the computer control switch and has a shape conforming to the shape of the outer periphery of the operation control button.

5. (Previously Presented) A control device for holding a computer control switch comprising:

a brake control device;

a shift control device integrated with the brake control device;

a casing encompassing the brake control device and the shift control device, wherein the casing defines a recess therein, the recess having a bottom wall and a side wall connected to the bottom wall; and

an operation control button with an outer periphery having a shape, wherein the operation control button is connected to the shift control device and movable within the recess, and wherein the recess is dimensioned to receive the computer control switch and has a shape conforming to the shape of the outer periphery of the operation control button.

6. (Previously Presented) A bicycle switch assembly, comprising:

a bicycle control device having a casing, the casing defining a switch mounting recess, the recess having a bottom wall and a side wall connected to the bottom wall; and

a control switch mounted in the switch mounting recess, wherein the control switch comprises an operation control button having an outer periphery having a shape, wherein the operation control button is connected to the bicycle control device and movable within the switch mounting recess, and the switch mounting recess has a shape conforming to the shape of the outer periphery of the operation control button.

7. (Previously Presented) The bicycle switch assembly of claim 6 wherein the control switch is attached in the switch mounting recess by an adhesive.

8. (Previously Presented) The bicycle switch assembly of claim 6 wherein the switch mounting recess comprises a bottom surface and the bottom surface defines a hole therein, the operation control button having an attachment arm made of an elastic material, wherein the attachment arm is press fitted into the hole of the switch mounting recess.

9. (Previously Presented) The bicycle switch assembly of claim 6 further comprising an elastic outer cover at least partially surrounding the control switch wherein the elastic outer cover is press fitted into the switch mounting recess.

10. (Previously Presented) The bicycle switch assembly of claim 6 further comprising a retention ring configured to restrict the movement of the control switch.

11. (Previously Presented) The bicycle switch assembly of claim 10 wherein the retention ring is fastened to the casing.

12. (Previously Presented) The bicycle switch assembly of claim 11 wherein the retention ring is threadingly engaged with the switch mounting recess.

13. (Previously Presented) A bicycle control assembly for holding a control switch for a computer, the control switch having an operation control button with an outer periphery having a shape, the bicycle control assembly comprising:

a bicycle control device having a casing defining a switch mounting recess therein, the recess having a bottom wall and a side wall connected to the bottom wall;

wherein the switch mounting recess is dimensioned to receive the control switch and has a shape conforming to the shape of the outer periphery of the operation control button, and

wherein the operation control button is connected to the bicycle control device and movable within the switch mounting recess.

14. (Original) The bicycle control assembly of claim 13 wherein the control device comprises a shift control device.

15. (Original) The bicycle control assembly of claim 13 wherein the control device comprises a brake control device.

16. (Original) The bicycle control assembly of claim 13 wherein the control device comprises a shift control device and a brake control device.

17. (Original) The bicycle control assembly of claim 13 wherein the casing defines a cable mounting recess therein, the cable mounting recess is in communication with the switch mounting recess and extending from the switch mounting recess.

18. (Previously Amended) A handlebar assembly controllable by the hand of a bicycle rider, comprising:

a handlebar having an end;

a hand grip attached to the end of the handlebar;

a bicycle control device attached to the handlebar proximal the hand grip such that the rider's hand can reach the control device while remaining on the hand grip, the bicycle control



device having a top surface defining a switch mounting recess therein, the recess having a bottom wall and a side wall connected to the bottom wall;

a control switch mounted in the switch mounted recess of the control device, wherein the control switch comprises an operation control button having an outer periphery having a shape and the switch mounting recess has a shape conforming to the shape of the outer periphery of the operation control button, and wherein the operation control button is connected to the bicycle control device and movable within the switch mounting recess;

a cycle computer attached to the handlebar, separate from the bicycle control device; and

a connecting cable electrically connecting the control switch to the cycle computer.

19. (Original) The handlebar assembly of claim 18, wherein the control device further defines a cable mounting recess therein in communication with the switch mounting recess, wherein the cable mounting recess extends from the switch mounting recess in the direction of the cycle computer, and wherein a portion of the connecting cable is mounted in the cable mounting recess.

20. (Previously Amended) A method of installing a control switch having an operation control button with an outer periphery having a shape, comprising the steps of:

providing a control switch and a bicycle control device having a top surface, the top surface defining a switch mounting recess therein, wherein the switch mounting recess comprises a bottom wall and a side wall connected to the bottom wall, wherein the switch mounting recess is dimensioned to receive the control switch and has a shape conforming to the outer periphery of the operation control button, and wherein the operation control button is connected to the bicycle control device and movable within the switch mounting recess; and

securing the control switch in the switch mounting recess.

21. (Original) The method of claim 20 wherein the step of securing the control switch comprises adhesively attaching the control switch to the switch mounting recess.

22. (Original) The method of claim 20 further comprising the steps of:  
providing an attachment arm connected to the control switch, wherein the attachment arm comprises an elastic material;  
providing a bottom surface of the switch mounting recess, wherein the bottom surface defines a hole therein; and  
press fitting the elastic material into the hole in the bottom surface of the switch mounting recess.

23. (Original) The method of claim 20 further comprising the steps of:  
providing an elastic outer cover surrounding the control switch; and  
press fitting the elastic outer cover into the switch mounting recess.

24. (Original) The method of claim 20 further comprising the steps of:  
providing a retention ring; and  
attaching the retention ring to the control device in a manner that restricts the movement of the control switch.

25. (Original) The method of claim 24 wherein the step of attaching the retention ring to the control device includes fastening the retaining ring to a top surface of the control device.

26. (Original) The method of claim 24 wherein the step of attaching the retention ring to the control device includes threadingly engaging the ring with the switch mounting recess.

27. (Previously Presented) The bicycle switch assembly of claim 9 wherein the elastic outer cover is in frictional contact with and surrounded by a recess wall.

APPLICATION FOR  
UNITED STATES PATENT  
IN THE NAME OF

YOSHIHIDE ITEYA

FOR

BICYCLE CONTROL DEVICE

DOCKET NO. 57139-5045

*Prepared by*

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Exhibit A



PATENT  
57139-5045

## BICYCLE CONTROL DEVICE

5

### Field of the Invention

10 The present invention relates generally to bicycle control devices, and more particularly to an electric switch used to operate a bicycle computer, wherein the electrical switch is mounted in a recess defined in the bicycle control device.

### Background of the Invention

15

20 Modern bicycles allow the rider to control the gears, the brakes and other features of the bicycle to optimize the rider's experience. Much of the control functions are computerized so that a rider can control the particular function by simply pressing a switch. The switch is usually provided on a computerized control panel of a bicycle. A typical computerized control panel includes a base member mounted to the bicycle handlebar and numerous switches on the control panel, each switch corresponding to a particular function that is controllable by the rider.

25 During a ride, it is important that the rider be able to conveniently access the control switch associated with a particular function. Moreover, to retain control of the bicycle, it is desirable to provide a switch wherein the switch can be activated by the rider while allowing the rider to, simultaneously, retain a grip on the bicycle handlebar. However, while it is desirable to provide the switch close to the grip, it is not necessarily convenient

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Exhibit A

to have the computerized control panel positioned near the grip for several reasons. First, it is visually more desirable to have the control panel centered in front of the bicycle rider during a ride. Second, a computerized bicycle  
5 may already have numerous devices, such as the brake control device and shifter, already attached to the handlebar near the grip. Accordingly, there may be little room for an additional computerized control panel.

Accordingly, it is desirable to provide a control switch  
10 that is close to the grip of the handlebar so as to be easily accessible to a bicycle rider during a ride without requiring the rider to remove his or her grip from the handlebar in order to access the control switch.

It is also desirable to provide a control switch that is  
15 remote from the cycle computer such that the computer can be installed in a location that is easily viewable by the bicycle rider.

Furthermore, it is desirable to provide a simple and inexpensive method of installing the control switch.

20

#### Summary of the Preferred Embodiments

A bicycle control device having a switch mounting recess therein is disclosed. The bicycle control device  
25 could be a shifter, a brake control mechanism or an integrated shifting and brake control device. A control switch of a cycle computer is mountable in the switch mounting recess. The control switch is connected to a cycle computer, located remote from the control switch, by a  
30 connecting cable. The control switch can be attached in the switch mounting recess by various means, including, adhesively connecting the control switch to the switch mounting recess. In one embodiment of the invention, the

control switch is press fitted into the switch mounting recess. In another embodiment, an elastic portion of the control switch is press fitted into a hole in the switch mounting recess. The control switch can also be securely  
5 retained in the switch mounting recess by a retention ring attached to the control device.

Other objects, features and advantages of the present invention will become apparent to those skilled in the art from the following detailed description. It is to be  
10 understood, however, that the detailed description and specific examples, while indicating preferred embodiments of the present invention, are given by way of illustration and not limitation. Many changes and modifications within the scope of the present invention may be made without departing  
15 from the spirit thereof, and the invention includes all such modifications.

#### Brief Description of the Drawings

20 The invention may be more readily understood by referring to the accompanying drawings in which:

FIG. 1a is a front plan view of a preferred embodiment of the handlebar assembly of the present invention;

25 FIG. 1b is front plan view of another embodiment of the handlebar assembly of the present invention;

FIG. 2 is a perspective view of a preferred embodiment of the control device of the present invention;

30 FIG. 3 is a side cross-sectional view of a preferred embodiment of the control switch of the present invention installed in a recess in the control device;

FIG. 4 is a side cross-sectional view of a preferred embodiment of the control switch of the present invention installed in a recess in the control device;

5 FIG. 5 is a side cross-sectional view of a preferred embodiment of the control switch of the present invention installed in a recess in the control device;

FIG. 6 is a side cross-sectional view of a preferred embodiment of the control switch of the present invention installed in a recess in the control device; and

10 FIG. 7 is a side cross-sectional view of a preferred embodiment of the control switch of the present invention installed in a recess in the control device.

15 Like numerals refer to like parts throughout the several views of the drawings.

#### Detailed Description of the Preferred Embodiments

20 An exemplary embodiment of a handlebar assembly according to the principles of the present invention is illustrated in Figures 1a and 1b and identified by reference numeral 10. The handlebar assembly 10 includes a handlebar 12 and a pair of hand grips 14 attached at the opposite ends 16, 18 of the handlebar 12. A control device 20 is preferably  
25 attachable to the handlebar at a location proximal to the hand grip 14. A control device is defined herein as a mechanism for controlling a bicycle function, such as a shifter or a brake control apparatus. The control device also includes devices that combine two or more functional  
30 controls such as a combined brake and shifting device. In the embodiment shown in Figures 1a and 1b, the control device 20 is a combined brake and shifting device. However, it is envisioned that the invention encompasses any type of control



device and is not limited to the control device listed and shown herein.

As shown in Figures 1a and 1b, in one embodiment of the present invention, the control device 20 includes a brake lever 22, a first shift lever 23 (not shown) and a second shift lever 24. The brake lever 22 controls the braking mechanism of the bicycle when activated, in a manner known in the art. The shift levers 23, 24 control the shifting mechanism of the bicycle when activated, in a manner known in the art. The brake lever 22 and shift levers 23, 24 are preferably positioned on the handlebar 12 at a location proximal the hand grip 14 such that the rider can maintain a hand on the grip 14 while using an index finger to operate the brake lever 22 or shift lever 24 or using a thumb to operate the shift lever 23.

The handlebar assembly 10 preferably includes a cycle computer 30 attached to the handlebar 12. In a preferred embodiment of the invention, the cycle computer includes a computer screen 32 positioned substantially above the center of the handlebar 12. In the embodiment shown in Figures 1a and 1b, the cycle computer 30 includes a computer bracket 34. The computer bracket 34 is attachable to the handlebar 12 and when installed maintains the cycle computer 30 in a stable, rigid position.

The cycle computer 30 is preferably operable using a control switch 40. In a preferred embodiment of the invention, the control switch 40 is positioned at a location remote from the cycle computer 30. Specifically, as shown in Figures 1a and 1b, the control switch 40 is provided on the control device 20 in a position that is conveniently accessible to the rider. In the embodiment shown in Figure 1a, the rider can maintain a grip on the hand grip 14 while using an index finger to operate a brake lever 22 or

a shift lever 24, and using a thumb to operate a shift lever 23 or control switch 40. In another embodiment of the invention, as shown in Figure 1b, the control switch 40 is located on the control device 20 at a location that is conveniently accessible by the rider's index finger.

By providing the control switch 40 at a location remote from the cycle computer 30, the necessity of installing the computer 30 proximal to or integral with the control device 20 is eliminated. In this regard, the computer 30, and the computer screen 32, can be installed at a location that is more convenient for viewing by the rider while the control switch 40 can be installed at a location that is near the rider's hand. The control switch 40 is electrically connected to the computer 30 by the connecting cable 36. The connecting cable has one end attached to the control switch and the other end attached to the computer, such that by activation of the control switch 40, the rider activates a computer operation by the cycle computer 30. In another embodiment of the invention, the control switch 40 and the cycle computer 30 are in electrical communication via a remote wireless connection, known in the art.

As shown in Figure 2, the control device 20 of the present invention is provided with a switch mounting recess 42. In a preferred embodiment of the invention, the switch mounting recess 42 is a bottomed hole for inserting and securing the control switch 40. The switch mounting recess 42 has the same shape as the control switch 40 and is configured to closely fit the control switch 40. In a preferred embodiment of the invention, the switch mounting recess 42 is dimensioned such that when the control switch 40 is installed, the control switch 40 is flush with the surface of the control device 44, shown in Figure 2.

The control device 20 preferably includes a cable mounting recess 50 therein dimensioned to receive a portion of the connecting cable 36 which connects the control switch 40 to the cycle computer 30. The cable mounting recess 50 preferably has an end 52 connected to the switch mounting recess 42 and extends on the surface of the control device 44 in the direction of the cycle computer 30. In a preferred embodiment of the invention, when the connecting cable 36 is mounted in the cable mounting recess 50, the connecting cable 36 is flush with the surface 44 of the control device 20. The cable mounting recess 50 preferably retains a portion of the connecting cable 36 securely therein and prevents it from movement.

Figures 3 through 7 depict various means of installing the control switch 40 in the switch mounting recess 42 of the control device 20. As shown in Figure 3, in one embodiment of the invention, the control switch 40 is attached to the switch mounting recess 42 by a double-sided adhesive tape or other adhesive. In the embodiment shown in Figure 3, an adhesive layer 60 is positioned between the bottom surface 46 of the switch mounting recess and the control switch 40.

In the embodiment shown in Figure 4, the control switch 40 includes an outer casing 48 comprised of elastic material. The outer diameter or width of the control switch 40 is preferably larger than the inner diameter or width of the switch mounting recess 42. The control switch 40 is press fit into the switch mounting recess 42 such that the control switch is securely maintained in the switch mounting recess.

In the embodiment shown in Figure 5, the control switch 40 includes an attachment arm 62 protruding from the bottom thereof. The attachment arm 62 is preferably comprised of

an elastic material and press fit into a hole 64 at the bottom 46 of the switch mounting recess 42. In a more preferred embodiment, the outer casing 48 of the control switch 40 and the attachment arm are integrally attached and both comprise of an elastic material.

In the embodiment shown in Figure 6, the outer casing 48 of the control switch 40 includes a shoulder 66. To secure the control switch 40 in the switch mounting recess 42, a retention ring 68 is secured to the top surface 44 of the control device 20 surrounding the control switch 40. The retention ring 68 is dimensioned to restrict the movement of the shoulder 66 such that the shoulder 66 is not able to move outside of the switch mounting recess 42. The retention ring 68 is preferably attached the top surface 44 of the control device 20 by a fastener 70. In the embodiment shown in Figure 6, fastener 70 is a pair of screws, however, any known fasteners can be used.

In the embodiment shown in Figure 7, the retention ring 68 is threadingly engaged to the inside diameter 72 of the switch mounting recess 42. The retention ring 68 is positioned proximal the control switch 40 and dimensioned to restrict the motion of the control switch 40. In a preferred embodiment, the retention ring is configured to allow a rider to access and activate the control switch 40 while securely holding the shoulder 66 of the switch in place.

In a preferred embodiment of the invention, the control switch 40 is detachable from the switch mounting recess 42. A detachable switch enables the user to purchase the control device separately from the bicycle computer and switch assembly. Furthermore, if the switch requires repair or maintenance, the switch can be removed without removing the control device entirely.

The embodiments described above are exemplary embodiments of a bicycle control device having a switch mounting recess therein. Those skilled in the art may now make numerous uses of, and departures from, the above-  
5 described embodiments without departing from the inventive concepts disclosed herein. Accordingly, the present invention is to be defined solely by the scope of the following claims.

What is claimed is:

1. A bicycle control device comprising a top surface  
defining a recess therein, wherein the recess forms a  
5 container.

2. The bicycle control device of claim 1 wherein the  
recess is dimensioned to receive a computer control switch.

10 3. A bicycle shift control device for holding a  
computer control switch, comprising a top surface defining a  
recess therein, wherein the recess is dimensioned to receive  
the computer control switch.

15 4. A bicycle brake control device for holding a  
computer control switch, comprising a top surface defining  
a recess therein, wherein the recess is dimensioned to  
receive the computer control switch.

20 5. A control device for holding a computer control  
switch comprising:

a brake control device;

a shift control device integrated with the brake control  
device;

25 a casing encompassing the brake control device and the  
shift control device, wherein the casing defines a recess  
therein; and

wherein the recess is dimensioned to receive the  
computer control switch.

30

6. A bicycle control device, comprising:

a casing defining a switch mounting recess; and

a control switch mounted in the switch mounting recess.

7. The bicycle control device of claim 6 wherein the control switch is attached in the switch mounting recess by an adhesive.

5           8. The bicycle control device of claim 7 wherein the switch mounting recess defines a hole therein, the control switch having an attachment arm made of an elastic material, wherein the attachment arm is press fitted into the hole of the switch mounting recess.

10

9. The bicycle control device of claim 7 further comprising an elastic outer cover wherein the elastic outer cover is press fitted into the switch mounting recess.

15

10. The bicycle control device of claim 7 further comprising a retention ring configured to restrict the movement of the control switch.

20

11. The bicycle control device of claim 10 wherein the retention ring is fastened to the casing.

25

12. The bicycle control device of claim 11 wherein the retention ring is threadingly engaged with the switch mounting recess.

30

13. A bicycle control assembly for holding a control switch for a computer, comprising:

a control device having a casing defining a switch mounting recess therein;

wherein the switch mounting recess is dimensioned to receive the control switch.

14. The bicycle control assembly of claim 13 wherein the control device comprises a shift control device.

5 15. The bicycle control assembly of claim 13 wherein the control device comprises a brake control device.

16. The bicycle control assembly of claim 13 wherein the control device comprises a shift control device and a brake control device.

10

17. The bicycle control assembly of claim 13 wherein the casing defines a cable mounting recess, the cable mounting recess is in communication with the switch mounting recess and extending from the switch mounting recess.

15

18. A handlebar assembly controllable by the hand of a bicycle rider, comprising:

a handlebar having an end;

a hand grip attached to the end of the handlebar;

20 a control device attached to the handlebar proximal the hand grip such that the rider's hand can reach the control device while remaining on the hand grip, the control device defining a switch mounting recess therein;

25 a control switch mounted in the switch mounted recess of the control device;

a cycle computer attached to the handlebar, separate from the control device; and

a connecting cable electrically connecting the control switch to the cycle computer.

30

19. The handlebar assembly of claim 18, wherein the control device further defines a cable mounting recess in communication with the switch mounting recess, wherein the



cable mounting recess extends from the switch mounting recess in the direction of the cycle computer, and wherein a portion of the connecting cable is mounted in the cable mounting recess.

5

20. A method of installing a control switch, comprising the steps of:

providing a control switch and a control device defining a switch mounting recess therein, wherein the switch mounting recess is dimensioned to receive the control switch; and  
10       securing the control switch in the switch mounting recess.

21. The method of claim 20 wherein the step of securing  
15       the control switch comprises adhesively attaching the control switch to the switch mounting recess.

22. The method of claim 20 further comprising the steps of:

20       providing an attachment arm connected to the control switch, wherein the attachment arm comprises an elastic material;

providing a bottom surface of the switch mounting recess, wherein the bottom surface defines a hole therein; and

25       press fitting the elastic material into the hole in the bottom surface of the switch mounting recess.

23. The method of claim 20 further comprising the steps of:

30       providing an elastic outer cover surrounding the control switch; and

press fitting the elastic outer cover into the switch mounting recess.

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24. The method of claim 20 further comprising the steps of:

providing a retention ring; and  
attaching the retention ring to the control device in a  
5 manner that restricts the movement of the control switch.

25. The method of claim 24 wherein the step of attaching the retention ring to the control device includes fastening the retaining ring to a top surface of the control device.

10

26. The method of claim 24 wherein the step of attaching the retention ring to the control device includes threadingly engaging the ring with the switch mounting recess.

## Abstract

A bicycle control device having a switch mounting recess therein is disclosed. The bicycle control device could be a shifter, a brake control mechanism or an integrated shifting and brake control device. A control switch of a cycle computer is mountable in the switch mounting recess. The control switch is connected to a cycle computer, located remote from the control switch, by a connecting cable. The control switch can be attached in the switch mounting recess by various means, including, adhesively connecting the control switch to the switch mounting recess. In one embodiment of the invention, the control switch is press fitted into the switch mounting recess. In another embodiment, an elastic portion of the control switch is press fitted into a hole in the switch mounting recess. The control switch can also be securely retained in the switch mounting recess by a retention ring attached to the control device.

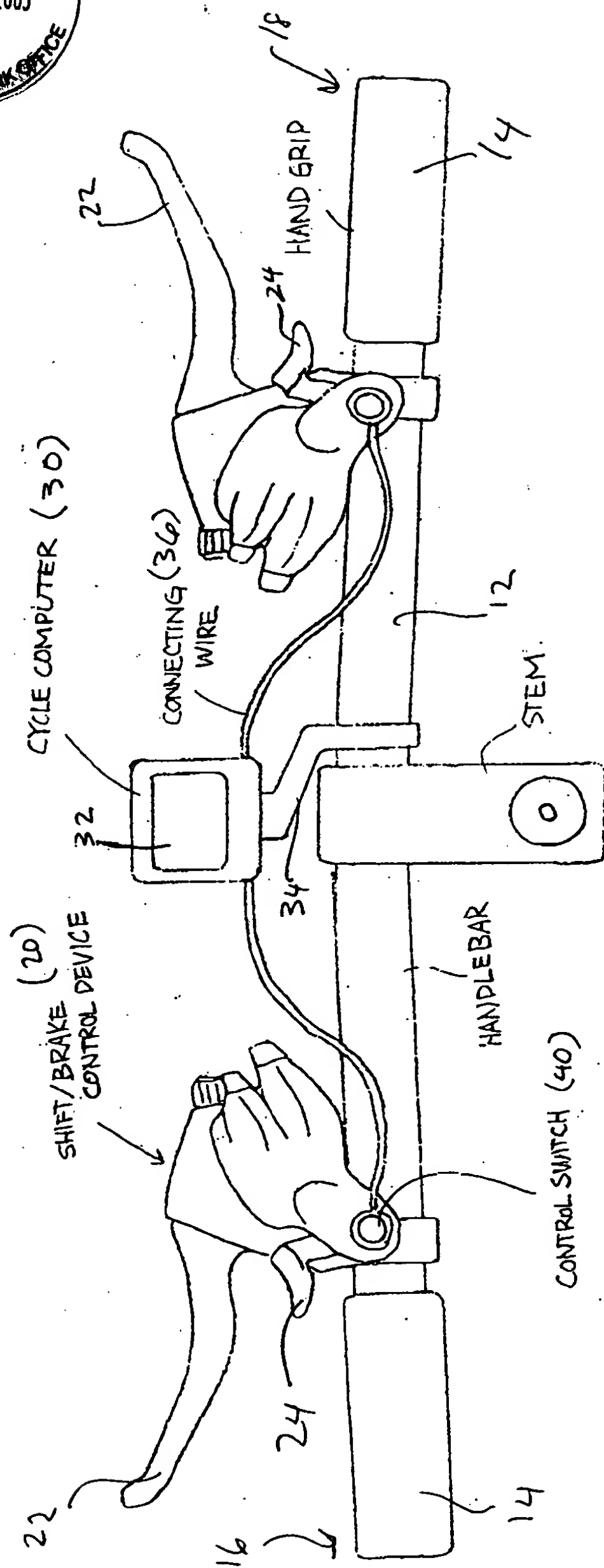


Fig. 1a

Exhibit A

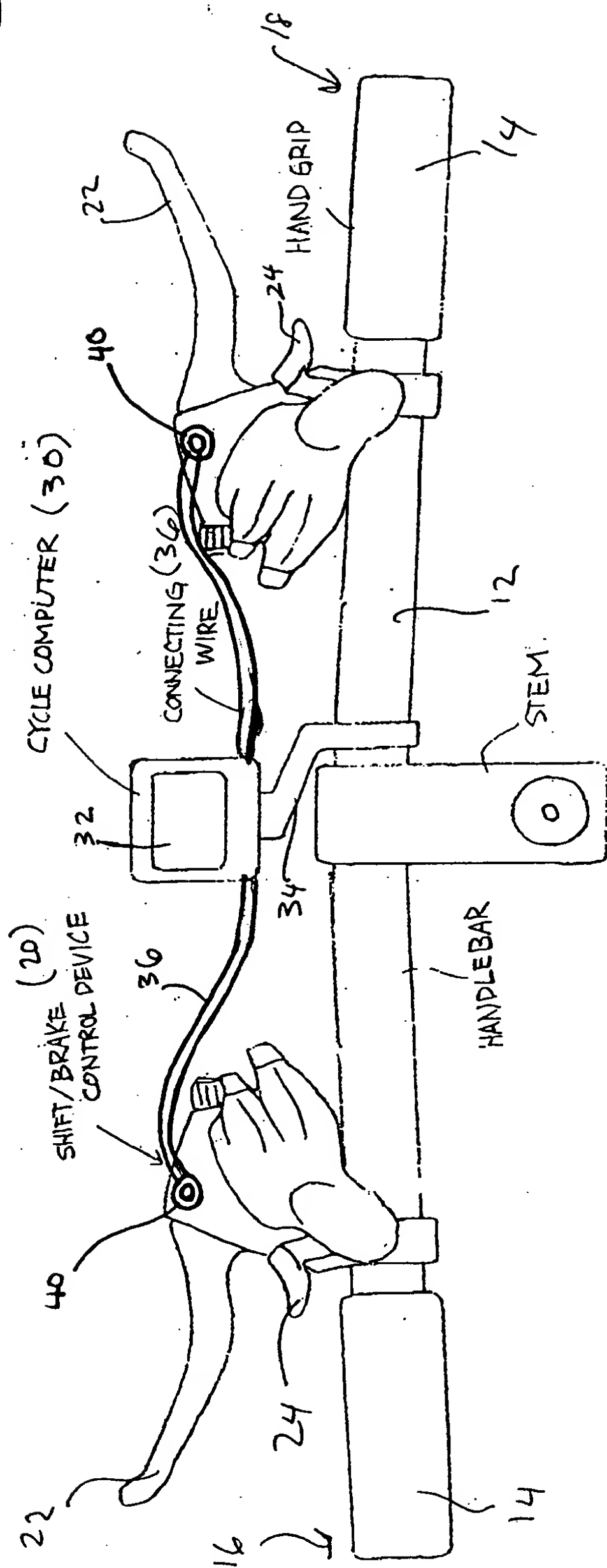


Fig. 1b

FIG. 2

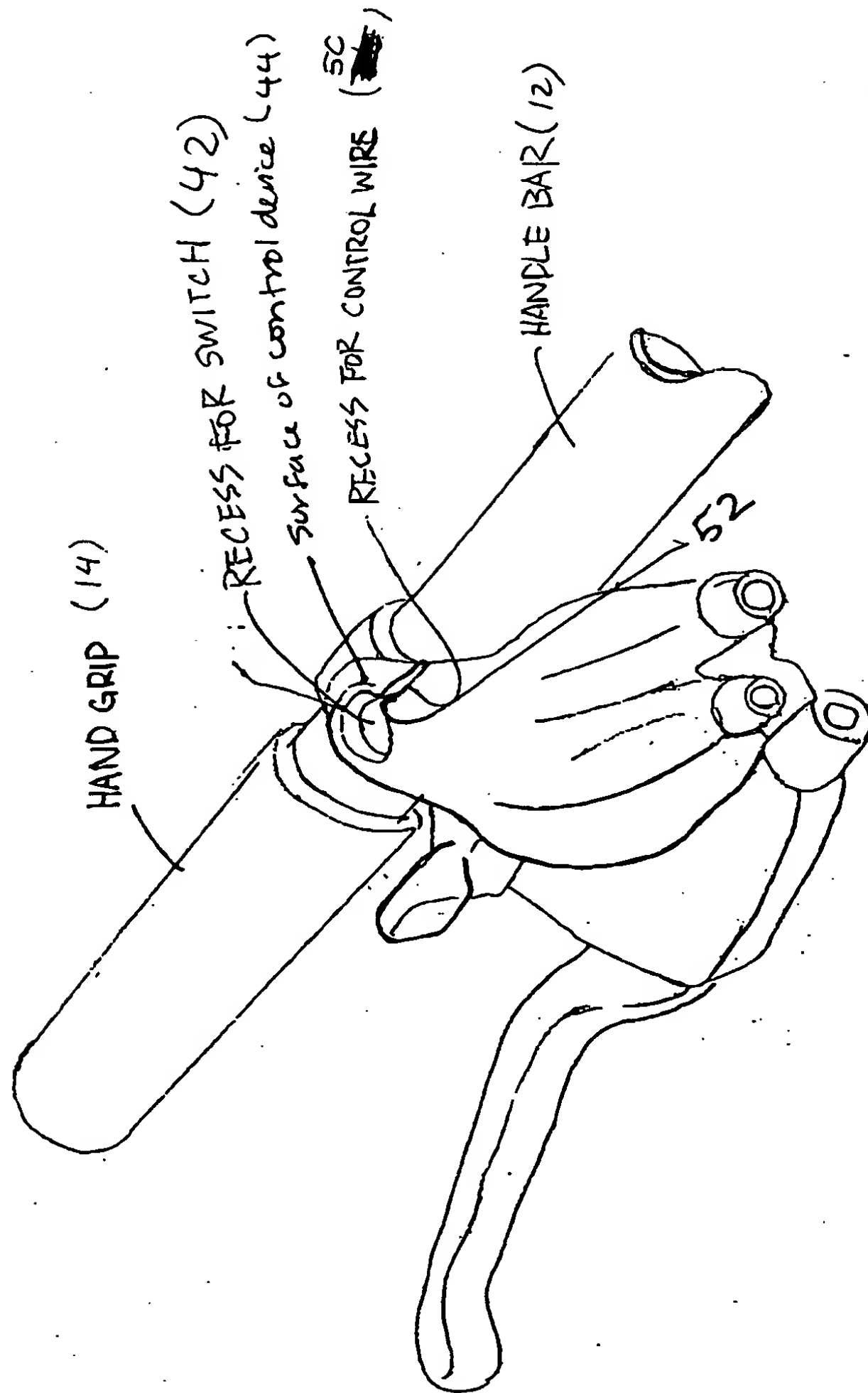


Fig. 3

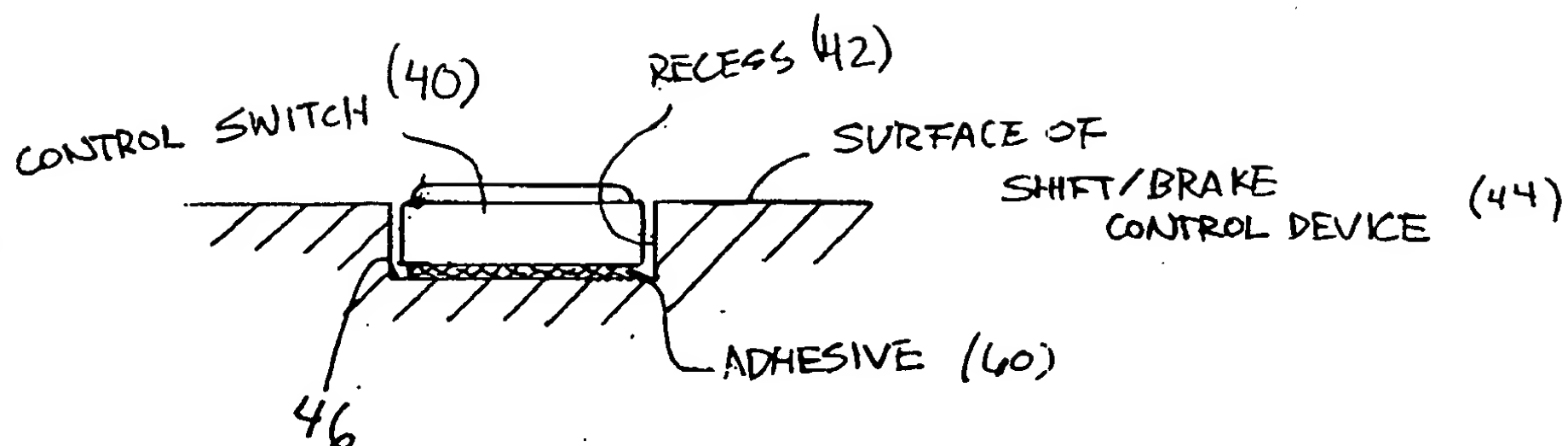


Fig. 4

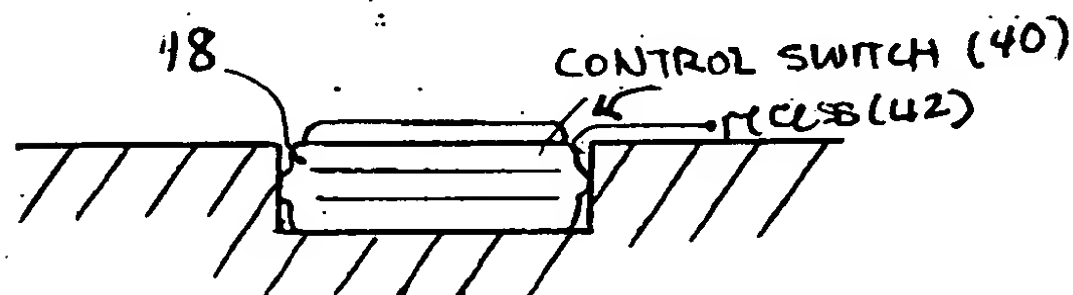


Fig. 5

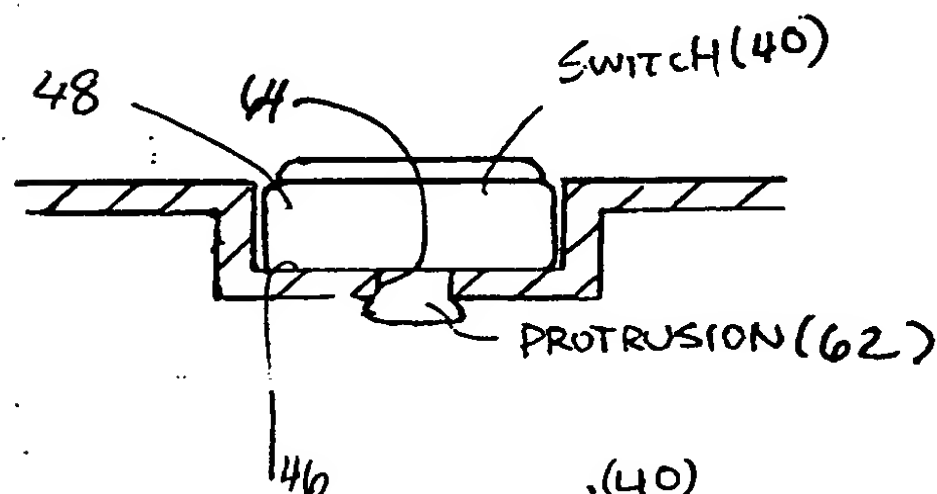


Fig. 6

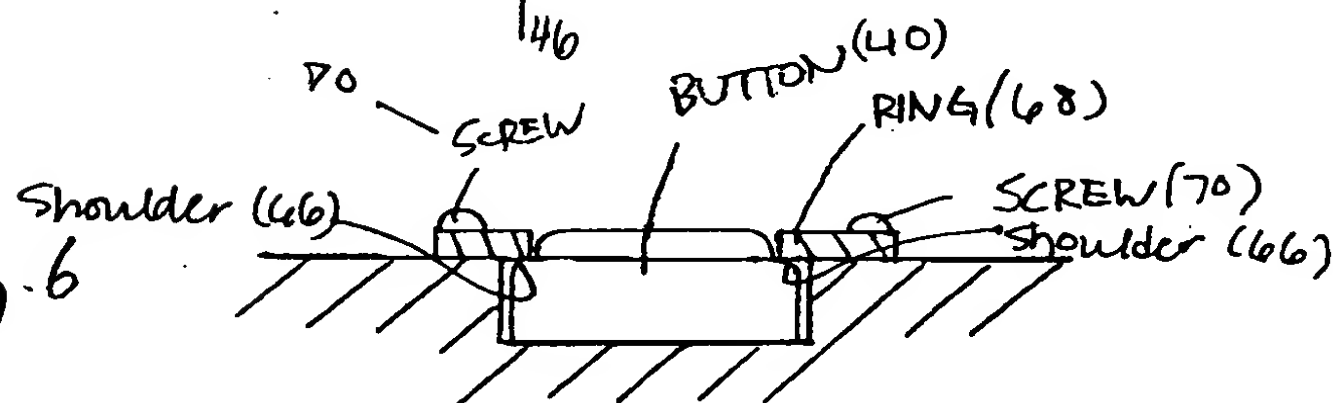


Fig. 7

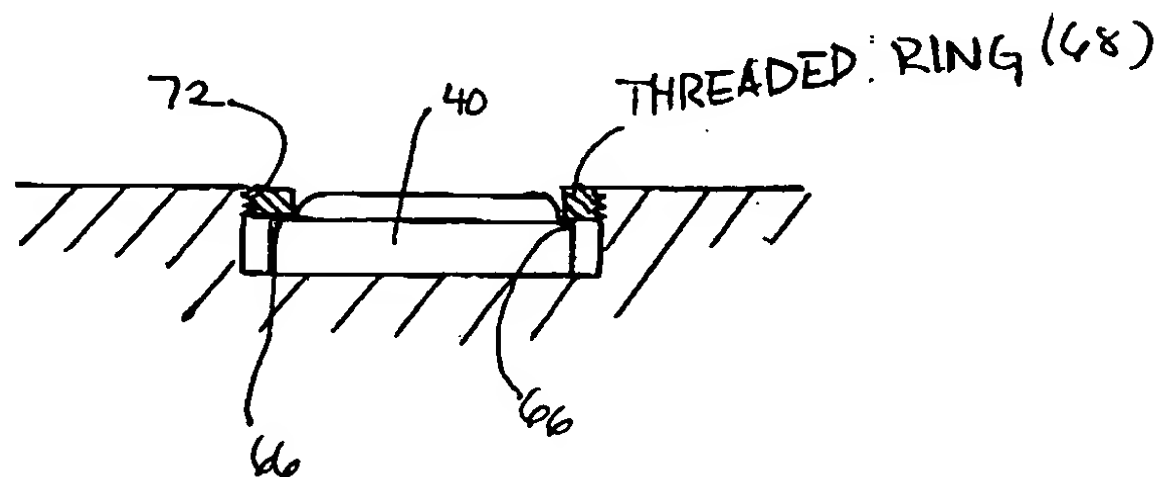


Exhibit A

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**FILE**

PATENT  
57139-5045

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:  
Yoshihide, ITEYA, et al.

Serial No. UNASSIGNED

Filed: HEREWITH

For: BICYCLE CONTROL DEVICE

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I hereby certify that patent application papers, including: Application for Patent (14 pages of specification, including 5 pages of claims and 4 sheets of informal drawings); Declaration (unsigned); Letter of Transmittal (Form PTO-1082) (duplicate); and return postcard are being deposited with the United States Postal Service as Express Mail No. EL687781012US on the date indicated below and addressed to: Box Patent Application, The Assistant Commissioner for Patents, Washington, D.C. 20231.

February 15, 2001

(Date of Deposit)

Laurie A. Rossi

(Name of Person Mailing Paper or Fee)

*Laurie A. Rossi*

(Signature)



PATENT	
Serial/Patent No. _____	File No. <u>57139-5045</u> Date Mailed <u>2-15-01</u> By: <u>LR4</u>
Title: <u>Bicycle Control Device</u>	
Client Name: <u>Shimano, Inc.</u>	
The Following, due _____ in the U.S. Patent and Trademark Office, was received in the Patent and Trademark Office on the date stamped hereon:	
<input type="checkbox"/> Amendment/Response <input checked="" type="checkbox"/> Application for Patent including <u>14</u> Pages of Spec.; No. of Claims <u>26</u> <input checked="" type="checkbox"/> Drawings: # of Sheets <u>4</u> _____ Formal <input checked="" type="checkbox"/> Informal <input checked="" type="checkbox"/> Declaration, Affidavit or Oath, Power of Attorney <u>unSigned</u> <input type="checkbox"/> Assignment w/PTO Form 1595 <input type="checkbox"/> Verified Statement <input checked="" type="checkbox"/> Form 1082 - New Appln. Transmittal (duplicate) <input type="checkbox"/> Petition for Extension of Time <input type="checkbox"/> Check No. _____ for \$ _____ <input type="checkbox"/> Check No. _____ for \$ _____ <input type="checkbox"/> Check No. _____ for \$ _____	<input type="checkbox"/> Transmittal Letter <input type="checkbox"/> Issue Fee Transmittal (duplicate) <input type="checkbox"/> Maintenance Fee Transmittal <input type="checkbox"/> Letter Re _____ <input type="checkbox"/> Notice of Appeal <input type="checkbox"/> Priority: _____ <input type="checkbox"/> Certified Copy: # _____ of Docs. <input type="checkbox"/> Information Disclosure Statement w/ _____ cited references <input checked="" type="checkbox"/> Express Mail No. <u>EL687781012US</u> <input checked="" type="checkbox"/> Certificate of Mailing <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____

FORM PTO-1082  
ASSISTANT COMMISSIONER FOR PATENTS  
Washington, D.C. 20231



EXPRESS MAIL NO. EL687781012US  
Case Docket No. 57139-5045  
Date: February 15, 2001

Sir:

Transmitted herewith for filing is the patent application of:

Inventor(s): YOSHIHIDE ITEYA

For: BICYCLE CONTROL DEVICE

Enclosed are:

4 Sheet(s) of drawing (☐ formal ☒ informal) +    extra copies

- ☐ An assignment of the invention to Shimano, Inc.  
☒ Will follow.  
☐ A certified copy of \_\_\_\_\_  
from which priority is claimed in the subject case pursuant to Rule 55(b) and 35 USC 119(a)-(d).  
☐ A Power of Attorney by Assignee and Exclusion of Inventor Under Rule 3.71.  
☐ A Verified Statement to Establish Small Entity Status under 37 CFR 1.9 and 37 CFR 1.27.  
☒ Declaration (unsigned)  
☐ Recordation Form Cover Letter (Form PTO 1595)  
☐ Information Disclosure Statement (Form PTO 1449), with \_\_\_\_\_ attachments  
☐ Petition to Make Special under 37 CFR §1.102 and MPEP §708.02(VIII).  
☐ Request and Certification Under 35 U.S.C. 122(b)(2)(B)(ii)

FOR:	NO. FILED	NO. EXTRA	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
			RATE	FEE		RATE	FEE
BASIC FEE				\$			\$ 710
TOTAL CLAIMS	26	20	6	x 9 = \$	OR	x 18 =	\$ 108
INDEP CLAIMS	3-	8	5	x 40 = \$	OR	x 80 =	\$ 400
MULTIPLE DEPENDENT CLAIMS PRESENTED			+ \$130			+\$260	
TOTAL				\$			\$1,218

- ☐ Please charge my Deposit Account No. 10-0440 the amount of \$ \_\_\_\_\_. A duplicate copy of this sheet is enclosed.  
☐ A check in the amount of \$ \_\_\_\_ to cover the filing fee is enclosed.  
☐ Check for \$ \_\_\_\_ covering Recordation of Assignment fee enclosed.  
☐ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 10-0440. A duplicate copy of this sheet is enclosed.  
☐ Any additional filing fees required under 37 CFR 1.16.  
☐ Any patent application processing fees under 37 CFR 1.17.  
☐ The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. 10-0440. A duplicate copy of this sheet is enclosed.  
☐ Any patent application processing fees under 37 CFR 1.17.  
☐ The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).  
☐ Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,

*Kathy Mojib*

KATHY MOJIB  
Registration No. 41,409

JEFFER, MANGELS, BUTLER & MARMARO LLP  
TENTH FLOOR  
2121 AVENUE OF THE STARS  
LOS ANGELES, CALIFORNIA 90067

Exhibit A



EXPRESS MAIL NO. EL687781012US  
PATENT (U.S.A.)  
ATTORNEY'S DOCKET NO. 57139-5045

## DECLARATION

☒ ORIGINAL  
☐ CONTINUATION  
☐ DIVISIONAL

As a below named inventor, I declare that the information given herein is true, that I believe that I am the original, first and sole inventor if only one name is listed at 1 below, or a joint inventor if plural inventors are named below at 1-4, of the invention entitled:  
**BICYCLE CONTROL DEVICE**

Which is described and claimed in:

- ☐ the attached specification or  
☒ the specification in application Serial No. \_\_\_\_\_ filed \_\_\_\_\_ ☐ as amended on \_\_\_\_\_ (if applicable)  
(for declaration not accompanying application)

and for which a patent is sought, and that my residence, post office address and citizenship are as stated below next to my name.  
I acknowledge my duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations § 1.56(a).  
I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.  
I hereby claim foreign priority benefits under Title 35, United States Code, § 119 (a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)			
COUNTRY	APPLICATION NUMBER	DATE OF FILING (day/month/year)	PRIORITY CLAIMED UNDER 35 UCS § 119
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

APPLICATION SERIAL NO.	FILING DATE

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 120, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION SERIAL NO.	FILING DATE	STATUS

Send correspondence to:  
JEFFER, MANGELS, BUTLER & MARMARO LLP  
Tenth Floor  
2121 Avenue of the Stars  
Los Angeles, California 90067

DIRECT TELEPHONE CALLS TO: Rod S. Berman, Esq.  
(Name and telephone number) (310) 203-8080

1	Name of Inventor	LAST NAME ITEYA	FIRST NAME Yoshihide	MIDDLE NAME	Residence: CITY Osaka	STATE or COUNTRY Japan
	Post Office Address 4-4-1, Aoi-cho, Izumisano, Osaka, JAPAN				CITIZENSHIP Japan	
	Signature			Date		
2	Name of Inventor	LAST NAME	FIRST NAME	MIDDLE NAME	Residence: CITY Osaka	STATE or COUNTRY Japan
	Post Office Address				CITIZENSHIP Japan	
	Signature			Date		
3	Name of Inventor	LAST NAME	FIRST NAME	MIDDLE NAME	Residence: CITY	STATE or COUNTRY
	Post Office Address				CITIZENSHIP	

Exhibit A

57139-5045



## UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. 20231  
www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/785,026	02/15/2001	3613	1348	57139-5045	4	26	8

CONFIRMATION NO. 3020

## UPDATED FILING RECEIPT



\*OC000000306188444\*

JEFFER, MANGELS, BUTLER & MARMARO .LLP  
TENTH FLOOR  
2121 AVENUE OF THE STARS  
LOS ANGELES, CA 90067



Date Mailed: 06/18/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

Yoshihide Iteya, Osaka, JAPAN;

## Domestic Priority data as claimed by applicant

## Foreign Applications

If Required, Foreign Filing License Granted 03/14/2001

Projected Publication Date: 08/15/2002

Non-Publication Request: No

Early Publication Request: No

## Title

Bicycle control device

## Preliminary Class

188

CALENDARED

Prior. Deadline: 2/15/02

JUN 28 2001

JEFFER, MANGELS, BUTLER &amp; MARMARO

BY

Data entry by : VO, THANH

Team : OIPE

Date: 06/18/2001

EXHIBIT B



**LICENSE FOR FOREIGN FILING UNDER  
Title 35, United States Code, Section 184  
Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Office of Export Administration, Department of Commerce (15 CFR 370.10 (j)); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

**PLEASE NOTE the following information about the Filing Receipt:**

- The articles such as "a," "an" and "the" are not included as the first words in the title of an application. They are considered to be unnecessary to the understanding of the title.
- The words "new," "improved," "improvements in" or "relating to" are not included as first words in the title of an application because a patent application, by nature, is a new idea or improvement.
- The title may be truncated if it consists of more than 500 characters (letters and spaces combined).
- The docket number allows a maximum of 25 characters.
- If your application was submitted under 37 CFR 1.10, your filing date should be the "date in" found on the Express Mail label. If there is a discrepancy, you should submit a request for a corrected Filing Receipt along with a copy of the Express Mail label showing the "date in."
- The title is recorded in sentence case.

Any corrections that may need to be done to your Filing Receipt should be directed to:

Assistant Commissioner for Patents  
Office of Initial Patent Examination  
Customer Service Center  
Washington, DC 20231

EXHIBIT B